

--58. (New) A method for producing a luciferase protein which is thermostable and substantially free of adenylate kinase, the method comprising culturing a host cell comprising a first nucleotide sequence which encodes said luciferase protein which retains at least partial luciferase activity at temperatures of 37°C, or more, and a second nucleotide sequence which encodes a mutant adenylate kinase polypeptide which includes mutations at amino acids 87 or 107 in the sequence of *E. coli* adenylate kinase, such that it is inactivated at a temperature of 37°C, under conditions where in said luciferase protein is produced; and

recovering the luciferase protein, wherein either the host cell culture or the recovered luciferase protein is subjected to temperatures of 37°C or more for a period of time sufficient to inactivate any adenylate kinase present but where the luciferase retains at least partial luciferase activity.

59. (New) The method according to claim 58 wherein the host cell is cultured for a period of time sufficient to allow production of said luciferase protein, and then said culture is subjected to a temperature of 37°C or more so that any adenylate kinase present in said culture is inactivated, and the luciferase protein is recovered.

60. (New) A recombinant cell comprising a first nucleotide sequence which encodes a luciferase protein that retains at least partial luciferase activity at temperatures of 37°C or more, under the control of regulatory elements which allow expression of said luciferase protein, and a second nucleotide sequence which encodes a mutant adenylate

kinase polypeptide which includes mutations at amino acids 87 or 107 in the sequence of *E. coli* adenylate kinase, such that it is inactivated at temperature conditions of 37°C.

61. (New) The recombinant cell according to claim 60 which further comprises at least one selection marker.

62. (New) The recombinant cell according to claim 60 which is a prokaryotic cell.

63. (New) The recombinant cell according to claim 62, wherein said prokaryotic cell is an *E. coli* cell.

64. (New) A method for producing a recombinant cell according to claim 60, comprising, in any order, (a) transforming a host cell with a vector comprising said second nucleotide sequence to produce transformants, subjecting said transformants to temperatures of 37°C or more and detecting those transformants in which adenylate kinase is inactivated, and (b) transforming said host cell with a vector comprising said first nucleotide sequence, and a first selection marker, and detecting transformation with said first selection marker.

65. (New) The method according to claim 60 wherein the vector of step (a) further comprises a second selection marker which is different from said first selection